



Evaluating the predictive skill of seasonal precipitation and temperature forecasts of NCEP CFSv2 forecasts in China

Qingyun Duan, Yang Lang, Aizhong Ye, and Wei Gong
(qyduan@bnu.edu.cn)

Seasonal predictions of precipitation and surface air temperature from the Climate Forecast System version 2 (CFSv2) are evaluated over 17 hydroclimatic regions in China against gridded daily observations from 1982 to 2007. The seasonal predictive skill is quantified with skill scores including correlation coefficient, root mean square error and mean bias for spatially averaged precipitation and temperature of each hydroclimatic region. The evaluation focuses on identifying regions and seasons where significant skills exist thus potentially contributing to skills in hydrological prediction. Using three-month averages, we find that the predictive skill of precipitation and temperature from CFSv2 has a stronger dependence on seasons and regions than on lead-time. Both temperature and precipitation show higher predictive skills during late summer (JAS) to late autumn (OND) and during winter (DJF) to spring (MAM). The temperature predictive skill is generally much higher than the precipitation predictive skill in all regions. As observed precipitation shows correlation with the Oceanic Niño Index over all hydroclimatic regions in China, we find that CFSv2 precipitation forecasts generally show similar correlations over these regions as well, which means that CFSv2 can capture ENSO (El Niño-Southern Oscillation) signal in that contributes to the precipitation predictive skill over these regions. The evaluation suggests that using CFSv2 forecast for seasonal hydrological prediction remains challenging, but with great potential.